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ABSTRACT

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ALCOHOLISM: A CRITIQUE OF THE TENSION REDUCTION HYPOTHESIS LITERATURE AND THE REFORMULATION OF A COPING MODEL OF ALCOHOL CONSUMPTION

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Running Head: Alcoholism: Coping

Abstract

Although the Tension Reduction Hypothesis (TRH) of alcoholism has been the most popular explanation for alcohol abuse to date, the research addressing this model has provided tenuous support at best. In light of this contradictory support, a coping model of alcohol consumption is proposed. This model is based on the low self-image of alcoholic-prone subjects. Alcohol is hypothesized to serve as a palliative coping method of reducing the distress associated with stressful situations of a personal evaluative nature. This is thought to be accomplished via alcohol's ability to impair the processing of information regarding the self. Thus, behavior or performance in evaluative situations is no longer perceived as distressful since it is disassociated with self-image. This then negatively reinforces drinking behavior. Future implications of this model of alcoholism are discussed.

Tension Reduction Hypotheses

The social and psychological factors associated with the consumption of alcohol are of immediate concern for the entire society (Hull, 1981). Alcohol consumption has been shown to be a major cause in traffic deaths and it is also implicated as a factor in a variety of social problems such as drownings, fires, assaults, murders, robberies, and sex related crimes (Shupe, 1954; Waller; 1969; Wolfgang & Strohm, 1956). Due to the social impact of this agent on our society, research has focused on the psychological causes and effects of alcohol consumption in hopes of finding clues towards preventing this "illness."

A prevalent view of the psychological effects of alcohol is that it reduces fear and/or anxiety and attenuates conflict-induced stress (Brown & Crowell, 1974). This theory of alcohol consumption has gained adherents due to its intuitive appeal and the numerous self-reports by social drinkers, heavy drinkers, and alcoholics that "tension relief" is one of the main reasons for alcohol consumption (e.g. Edwards et. al., 1972; Litman et. al., 1977; Mullford and Miller, 1963; Cahalan and Room, 1974). Conger (1951) first developed the theorized statement on this view which he described as the "Tension Reduction Hypothesis" (TRH). This theory has been subsequently elaborated by Bandura (1969) and Kraft (1971) and it now

stands as the cornerstone directing research on the causes of alcohol consumption.

The TRH is a behavioral analyse of alcohol consumption which focuses on the reinforcing effects of alcohol through the reduction of tension. The state of arousal (i.e. tension) which leads to alcohol consumption has been described by various researchers as an unpleasant state characterized by anxiety (Conger, 1956), conflict (Smart, 1965), frustration (Vogel, 1953), or resentment (Fleetwood, 1955). According to the TRH (a) increased internal tension constitutes a heightened drive state, (b) alcohol consumption has the reinforcing property of reducing this drive state, and (c) such drive-reducing reinforcement strengthens the alcohol consuming response (Hull, 1981). This pattern of reinforcement is thought to lead to habitual drinking when alcohol consumption becomes a primary response to heightened internal tension (Hull, 1981). The TRH is thus based on two assumptions: first, that alcohol can reduce tension and second, that alcohol is often consumed to reduce tension. Research has focused on these two assumptions in an attempt to either support or refute the TRH theory. Each of these assumptions will be addressed in this review by critically analyzing the TRH research to date. The research will then be reanalyzed and a new theory of alcohol consumption based on a coping model will be proposed.

TRH: Can Alcohol Reduce Tension

The purpose of this section of the literature review will be to analyze critically the TRH research bearing on alcohol's ability to relieve tension. Due to inconsistent support for the TRH hypothesis in human studies, (e.g. Higgins, 1976) the intent of this review will be to reanalyze the present body of literature concerning the tension reducing effects of alcohol by dividing the studies performed into meaningful categories (i.e alcoholic vs. nonalcoholic subjects; physiological measures vs. cognitive measures of tension; acute vs. long-term drinking behavior). It will be shown that these categorical analyses of the research findings are inconsistent with the TRH. A more coherent theory of alcohol consumption based on coping behavior will be shown to be more consistent with the research findings to date.

Problems in Evaluating the Evidence on Alcohol Consumption and Tension Reduction

As previously cited, past attempts to support or refute the tension reducing effects of alcohol have led to inconsistent and confusing results (e.g. See Higgens, 1976 for review). Higgens (1976) suggests that research directed

at supporting or refuting the TRH should be reviewed in consideration of (a) type of measure of tension, (b) type of population studied, and (c) long- and short-term effects of alcohol consumption.

The inconsistency with which the concept of tension has been operationalized is one area of confusion in the TRH literature. In general two types of measures, physiological and cognitive, have been used to define tension. The physiological measures have included urine analyses of noradrenaline (e.g Goddard, 1958), muscle tension (e.g. Steffen, Nathan, & Taylor, 1974), galvanic skin response (GSR) and skin conductance (e.g. Carpenter, 1957), sympathetic reactivity (e.g. Kissin and Hankoff, 1959), etc. The cognitive indicators of tension have relied on measures of self-report on adjective checklists (e.g. Williams, 1966), conflict reduction measures (e.g. Conger, 1956), interviews (e.g. McNamee, Mello, and Mendelson, 1959), observed behaviors (e.g. Nathan and O'Brien, 1971), TAT measures (e.g. Van Der Spuy, 1972), etc. In this review, these studies will be divided into the general categories of physiological and cognitive measures in order to develop a more systematic view of alcohol consumption. Past attempts at integrating the research findings may have failed to conclusively support the TRH due to inconsistency between these two general measures of tension (Freed, 1978).

A second confounding factor in the study of the tension reducing effects of alcohol could have been the different populations which were used in these studies (Freed, 1978). Although attempts have generally failed at defining a global "alcoholic personality" (Higgins and Marlatt, 1973) with a reliable syndrome of traits, many reports suggest that alcoholics score higher than normal subjects on traditional personality measures of arousal such as anxiety and neuroticism (e.g. Menaker, 1967; Okulitch & Marlatt, 1972). Heilizer (1964) also found that alcoholics viewed alcohol differently than nonalcoholics. In light of these findings, it appears that an adequate review requires division into those studies performed with alcoholics as compared to those studies using nondrinkers or "social drinkers."

A third confound in the TRH literature is the length of intoxification before measuring tension. It will be shown that although many of the studies which involved an acute administration of alcohol support the tension reducing effects of alcohol, studies of prolonged intoxification generally concluded that subjects exhibit an increase in tension (e.g. Mendelson, 1964).

Studies which address the tension reducing effects of alcohol will next be reviewed. The previously mentioned variables will be the basis by which these studies are presented and reviewed.

Research on the Tension Reducing Effects of Alcohol

Nonalcoholic Subjects; Physiological Measures of Tension

Acute Administration of Alcohol: Studies examining the mitigating effects of acute alcohol consumption with nonalcoholic subjects have produced mixed results. Two measures of tension commonly used due to their ease of measurement are basal skin conductance (BSC) which reflects a person's tension level and galvanic skin response (GSR) which taps reactivity to emotionally arousing stimuli.

In one such study using both BSC and GSR measures, Carpenter (1957) tested the hypothesis that alcohol consumption would lead to tension reduction in nonalcoholic subjects. Carpenter compared the effects of two different types of alcohol (wine and an aqueous alcohol solution; 12% alcohol by volume each) in two separate quantities (50 or 350 ml). Carpenter found a significant inverse relationship between type and quantity of alcohol consumed and BSC. Wine was found to be slightly less effective than the alcohol solution in reducing BSC response at a low dose although the reverse was true at higher doses of alcohol. In regards to the GSR measure, regardless of the type of alcohol, GSR levels, as evoked by a loud noise, were significantly less

at high doses of alcohol. The BSC effects were attributed by the author to the poorer palatability of the alcohol solution and the varying absorption rates of the two dose forms. In a later more complete analyse of the data, Greenberg and Carpenter (1957) included data from a placebo control group which was absent in the first study. These later comparisons, although still indicating confusing BSC results, showed that an increased dose of alcohol, irrespective of type, significantly reduced GSR measures. In summary, these results indicate that alcohol reduces emotional reactivity to arousing stimulus.

In a similar study which explored the effects of alcohol (20cc of 98% ethanol independent of body weight) on GSR reactivity to emotionally laden sentences, Lienert and Traxel (1959) showed that, compared to a control group, alcohol consuming subjects showed significantly lowered GSR activity to the emotionally laden sentences. The authors concluded that alcohol served as an antianxiety agent.

In another study which compared the effects of alcohol on GSR using verbal stimuli, Coopersmith (1964) found that while moderate doses of alcohol (0.86 ml of 43% alcohol per kg body weight) tended to increase overall GSR reactivity to affect-laden words, the mean recognition threshold differences for high- and low-affect words were smaller for alcohol than nonalcohol consuming subjects. The author suggested that moderate alcohol doses may have a dual

effect of increasing responsivity to stimuli while decreasing subjective stress.

In another study which failed to find a significant relationship between alcohol consumption and anxiety in subjects, McDonnell and Carpenter (1959) observed the effects of alcohol on skin conductance of normal subjects who were engaged in a card game. The subjects served as their own controls over a period of two sessions and they were administered two bottles of beer in each session. In one session the subjects received "near beer" with an alcohol content of less than 0.05% alcohol by content while in the alternate session the subjects received a "fortified beer" (4.8% alcohol by content). Across continuous measures of skin conductance, no significant relationships were found between alcohol content consumed, self-ratings of anxiety, and skin conductance.

McGonnell and Beach (1968) conducted an alcohol/GSR experiment which, unlike previous studies, measured GSR as a conditioned response. The effect of alcohol on this response was hoped to be a more accurate test of the hypothesis that alcohol reduces a conditioned anxiety response. The authors found that although alcohol (0.57 g per kg) reduced the amplitude of a conditioned GSR, the magnitude of the unconditioned GSR to the shock UCS did not differ between alcohol and placebo groups. Therefore, although the authors concluded that alcohol reduced

anxiety, they failed to obtain independent support for the assumption that the conditioned GSR was a reflection of anxiety.

Along with the measures of BSC and GSR, other physiological measures of tension have been used to test the tension reducing effects of alcohol. A study by Goddard (1958) examined urine samples to test noradrenaline levels. This test is thought to tap the stress reducing effects of alcohol on the sympathetic nervous system. Goddard found that pre-flight administration of 50ml of alcohol significantly lowered the post-flight noradrenaline levels in the urine of glider pilots engaged in training as compared to those pilots who did not receive alcohol pre-flight. These results were interpreted as support for a tension reducing effect of alcohol.

In a study of heart rate (HR) after the consumption of alcohol (.5 ml per kg of body weight), Doctor and Perkins (1961) used two stressors (a cold-pressor and venipunture for withdrawal of blood) to examine alcohol's tension reducing effects. The results indicated that resting heart rate, post-stressor, did not differ between a nonalcohol consuming control group and an alcohol consuming group. In spite of the lack of differences, both groups showed increases in heart rate pre- to post-stressor.

In summary, the only repeated and significant findings in the research just reviewed were that alcohol had a

reducing or at least a dampening effect on GSR. Cappell and Herman (1972) point out that this physiological measure, in contrast to being a measure of anxiety, actually reflects a person's reactivity to emotionally arousing stimuli. In light of this, the research suggests that alcohol simply "dulls" an individual's response to stimuli.

Due to the complete lack of studies in the area of long-term effects of alcohol consumption with nonalcoholic subjects, the literature on cognitive measures of tension with this population will be reviewed next.

Nonalcoholic Subjects; Cognitive Measures of Tension

Acute Administration of Alcohol: A study by Korman, Knopf, and Austin (1960) explored the affects of alcohol consumption on facilitation of psychological functions. This study was based on the assumption that if alcohol reduces anxiety, subjects should be able to perform cognitive tasks more efficiently after consuming alcohol even though they are under stress. This hypothesis was supported in that normal subjects who were given 24kg of alcohol performed significantly better on a serial learning task (i.e. learning to anticipate nonsense syllables) under stress (i.e. threat of shock) than subjects in a control group who were not given alcohol. Validation for this effect was found in a no-alcohol consumed condition where

subjects under stress performed more poorly than subjects who were not threatened with shock. Graphically presented data was interpreted by Cappel and Herman (1972) though as not being quite so conclusive. They cite that although the interaction (alcohol X stress) was significant, most of the effect was due to the superiority of the no-alcohol consumed group in the no-stress condition. They also point out that in the stress-condition, the superiority of the alcohol group was "comparatively slight."

In another study of the effect of alcohol on anxiety and test performance, Logue et. al. (1978) examined varying dose levels (0, 0.5, 0.8, and 1.2 g/kg body weight) on reported state anxiety of college students both before and after a battery of complex psychomotor tests. A positive relationship was found between the amount of alcohol ingested and self-reported state anxiety for both males and females. Anxiety in this study also appeared to be related to subject's perceptions of their performance on the task although actual performance was not related to anxiety. Thus, subjects who felt they were performing badly due to the alcohol experienced more anxiety. Unlike the previous study, actual performance as a function of alcohol consumed was not reported.

In a study of social drinking at a fraternity party using an adjective checklist for measuring cognitive tension, Williams (1966) found that consumption of up to

six ounces of whiskey tended to reduce anxiety in nonalcoholic subjects as measured by the checklist. In contrast to this effect, with doses of alcohol in excess of six ounces, anxiety tended to regress towards the subjects pre-alcohol administration levels. The author attributed the initial anxiety reducing effects of alcohol to the TRH while he regarded the regression of the antianxiety effect of alcohol to the negative side effects (e.g. nausea, lack of control) of heavy consumption.

In another study which failed to find an effect of reduced tension after continued consumption of alcohol, Smith, Parker, and Noble (1975) explored the effects of intoxification on anxiety in social interactions of nonalcoholic subjects. In this study subjects were placed in either a low-dose condition in which they received 80 proof vodka in a peppermint drink or a placebo-administration condition in which the subjects only received the peppermint drink. After consumption of their respective drink, subjects were observed in social interactions and tested for anxiety on the Gottschalk-Glesser scale of anxiety. On the basis of self-report and observer ratings of interactions, alcohol administered subjects were judged to be significantly more elated and have more emotional expression than the subjects in the placebo group. In contrast to these measures, groups did not differ on any of the ratings of anxiety (i.e.

self-report, anxiety inventory, or observer ratings).

In a similar test of social drinking, Kalin, McClelland, and Kahn (1965) tested anxiety as measured by the Thematic Apperception Test (TAT) in a "mock" social gathering of college students who were served drinks either containing or not containing alcohol. The author concluded from this study that alcohol had a fear-anxiety reducing effect only after five or more drinks by reducing "inhibitory thoughts." This effect is in direct conflict with the results obtained by Williams (1969).

In a study examining cognitive effects of alcohol consumption via the manipulation of expectancies, Polivy et. al. (1976) found an interaction between these two factors. Forty nonalcoholic college students were placed in a reaction-time task which was presented as a test studying the effects of household drugs. Subjects were placed in either a high-threat (threat of shock) or low-threat (no shock) condition and asked to test the effects of either vitamin C or alcohol. Subjects who were told that they would be receiving alcohol either received 0.5 g per kg body weight of alcohol or a placebo. The results indicated that although alcohol was relaxing as measured by self-report, the cognition that one is receiving alcohol, even if not administered, increases state-anxiety as measured by the same inventory.

Mixed Measures of Tension: In a study of both

cognitive and physiological measures of tension, Dengerink and Fagan (1978) found mixed results of alcohol's effect on tension when college students were tested while receiving an aversive stimulus. In this study subjects consumed alcohol in various doses (high dose= 0.95 g per kg; low dose= 0.55 g per kg) or received a placebo drink after which they participated in a shock task. Results indicated that under this stressful situation alcohol consumption at all dose levels resulted in sustained high levels of self-reported anxiety, no effect on a behavioral measure of anxiety (i.e. choice of immediate or delayed shock), increased levels of emotional arousal as measured by heart rate, and increased responsiveness as measured by skin conductance. In summary, this study had opposite effects than would have been predicted by the TRH. In this type of situation tension was not reduced as measured by either the physiological measures or the cognitive measures.

In a series of studies (Abrams & Wilson, 1979; and Wilson and Abrams, 1977) with college students, the physiological arousal and social anxiety effects of alcohol consumption were studied in light of expectancy effects. In general, these studies indicated that the expectancy of receiving alcohol had an effect on physiological arousal although the direction of this effect differed for males and females in that females showed increased arousal to the expectation of consuming alcohol while males showed the

opposite effect. The cognitive and behavioral measures of anxiety in these studies were mixed and led to inconclusive results. In a continuation of this line of research, Wilson et. al. (1980) explored the effects of past drinking patterns (heavy vs. light drinkers) and alcohol dose (i.e. 0.5 g per kg body weight, 1.0 g per kg, and placebo) on physiological, self-report, and observed measures of social anxiety controlling for expectancies. The results indicated that increased alcohol consumption led to decreased HR although skin conductance was not affected. There was also no effect of alcohol consumption on self-reported measures of anxiety and the observational measures of anxiety led to confused results due to a sex of rater interaction. Past drinking experience also had no effect on social anxiety. As in previous studies, expectancies could account for the results since the attempt to hold expectancy effects constant in this study failed.

In summary, research on the the cognitive tension reducing effects of acute alcohol consumption is inconclusive. In spite of the lack of support for the TRH, there may be a facilitive effect of alcohol consumption when a subject is involved in an evaluated-skill test (i.e. Korman et. al. 1960). This was in contrast to an increase in actual state anxiety. In the area of social alcohol consumption and tension reduction, the results are mixed and contradictory, thus no conclusions can be drawn from

this area of research. In other studies, (i.e. Dengerink & Fagan) alcohol was implicated as having the effect of increasing anxiety when subjects were receiving an aversive stimulus. This effect is opposite the results predicted by the TRH. In general, the effects of alcohol on cognitive tension in this population of subjects is inconclusive.

The following review will concentrate on studies performed with alcoholic subjects. The first portion will deal with the physiological measures of tension after acute alcohol consumption.

Alcoholic Subjects; Physiological Measures of Tension

Acute and Long-Term Administration of Alcohol: The physiological measures of tension in alcoholics have mainly centered on measures of autonomic arousal (e.g. skin conductance, heart rate, etc.). In one study of this type, Kissin and Hankoff (1959) studied the effects of alcohol on the Funkenstein Mecholy response. This response is thought to measure sympathetic activity (i.e. arousal) of the autonomic nervous system. From the results of this study, the authors concluded that alcohol showed a significant tendency to reduce extremes of CSR rather than having a uniform stimulating or depressing effect. Thus alcohol simply reduced the extremes of physiological tension.

In a study of resting heart rate, which is also used as

a measure of autonomic nervous system arousal, Doctor, Naitoh, and Smith (1966) administered 1.5 ml of alcohol per kg of body weight to 25 alcoholics. Results indicated a positive correlation between blood-alcohol level and resting heart rate. Thus alcohol was implicated in increasing autonomic arousal which is in opposition to the predictions of the TRH.

In another study Levenson et. al. (1980) examined alcohol consumption and consumption expectations on psychophysiological levels of autonomic arousal prior to and following stress. The conditions in this study were consumption of alcohol (1 g per kg body weight) versus no consumption, alcohol expected versus no alcohol expected, and a self-disclosing speech stressor or a threat of shock stressor. Results indicated that prior to receiving a stressor, alcohol consumption led to accelerated heart rate (HR), lower HR variability, higher skin conductance, longer pulse transmission time (PTT), and self-report measures of higher cheerfulness and lower anxiety. Post-stressor alcohol consumption significantly reduced the magnitude of the physiological measures of HR, PTT, and anxiety as measured by self-report.

In a long-term study of the autonomic arousal effects of alcohol on heart rate, Doctor and Bernal (1964) studied two male alcoholics over a period of 14 days. Subjects were found to show markedly elevated heart rates on days when

alcohol was consumed as compared to a pre-alcohol consumption control period. Heart rates tended to stay elevated even after seven days of abstinence from alcohol.

Although the research examining the effect of alcohol on reduction of physiological tension in alcoholics is very contradictory and inconclusive, there is a suggestion in the literature that alcohol consumption by the alcoholic leads to increased autonomic arousal (i.e.tension) over a long period of consumption. As in the studies using nonalcoholic subjects, there also appears to be a response dampening effect of alcohol in this subject population (i.e. Kisson and Hankoff, 1959). Research into the cognitive effects of short-term alcohol consumption will be explored next.

Alcoholic Subjects; Cognitive Measures of Tension

Acute Administration of Alcohol: Van Der Spy (1972) compared the emotional state of alcoholics following a limited drinking session with their state when sober. Alcoholics' tension was measured via the Willoughby Personality Schedule, the TAT, and the Rorschach test, both before and after consuming 3 or 4 2-oz drinks of alcohol. The results were interpreted by the author as indicating that after a limited drinking session, alcoholic subjects experienced a significant increase in "inner tension and

anxiety." Although this study was not replicated and there are no other studies in this area, the TRH was not supported in this instance. Long-term effects of alcohol consumption and cognitive measures of tension have been a much more productive area of research.

Alcoholic Subjects; Cognitive Measures of Tension

Long-Term Consumption of Alcohol: Contrary to the predictions of the TRH, most studies of long-term consumption of alcohol show that alcoholic subjects actually exhibit an increase in cognitive tension. This effect was first reported by Mendelson and his colleages (i.e. Mendelson, 1964). In this study, ten alcoholics were observed over a 24-day period of continuous intoxification in a research ward setting. The author concluded from the observations that as the alcoholics continued drinking, anxiety feelings increased.

In another study of observed tension, Mendelson, La Dou, and Solomon (1964) observed ten alcoholics over a period of two weeks of experimental intoxification. From their observations they concluded that as intoxification progressed, so did feelings of anxiety and depression.

In a similar study, McName, Mello, and Mendelson (1968) used psychiatric interviews and behavioral observations as measures of tension in 12 male alcoholics

who were given access to alcohol over a period of a week. From their measures, the authors concluded that feelings of anxiety and depression showed marked increases as the length of intoxification and amounts of alcohol consumed increased. This pattern of results has been supported in other similar studies.

The interaction of the effects of alcohol over a long period of time were more accurately explored in a controlled study by Nathan and O'Brien (1971). In this study, four long-term alcoholics and four matched nonalcoholics were observed over an 18-day period of "programmed" drinking. The observed reactions of the subjects indicated that the alcoholics showed signs of increased anxiety and depression over the period, while in contrast, the nonalcoholic subjects showed essentially no change in affect.

In another very well conceived and controlled study, Steffen, Nathan, and Taylor (1974) studied the relationship between alcohol consumption, self-reported distress, and muscular tension. In this research project, subjects were allowed free access to alcohol over a period of twelve days. Every other hour during this period subjects were tested for blood-alcohol level, electromyographic (EMG) response (a measure of the Central Nervous System), and subjective distress. Results indicated a significant negative correlation between blood alcohol level and EMG, a

significant positive correlation between alcohol blood level and subjective distress, and no relationship between EMG and subjective distress. Thus although Central Nervous System physiological tension decreased, subjective tension actually increased over long-term intoxification.

In a study comparing reported anxiety of four alcoholic subjects and four nonalcoholic subjects over a much shorter period of intoxification than the previous studies, (i.e. four days) McGuire, Stein, and Mendelson (1966) found mixed results. Of the four alcoholic subjects observed, only one showed heightened anxiety as drinking progressed. This lack of anxiety across all subjects in general supported the alcoholic's statements prior to the intoxification period that they would not be affected emotionally by the drinking. In contrast to the alcoholic subjects, all of the nonalcoholic subjects showed signs of increased tension and anxiety over the observation period. Confounding variables in this study were the expectancies induced by the experimenter prior to the drinking period that some change would take place in anxiety levels and also the period of intoxification was not as long as in other studies in this area.

From the literature reviewed above, a general conclusion regarding alcohol's effect on cognitive tension after long periods of intoxification of alcoholics can be made. The data suggest that alcohol may cause an increase

in cognitive tension over both the acute and the long-term usage of alcohol. These cognitive effects of alcohol use are thus in direct contrast to the predictions of the TRH.

In summarizing the research of the effects of alcohol on tension reduction, alcoholics appear to be affected by alcohol in a somewhat different manner than nonalcoholics. In regards to physiological measures, alcoholics show a trend towards increased tension as alcohol consumption progresses. In contrast to this effect, the major physiological effect of alcohol on nonalcoholic subjects appears to be a reduction in reactivity to arousing stimulus over acute administrations of the drug. In regards to cognitive measures of tension, alcoholic subjects show both a short-term and long-term increase in cognitive tension with the consumption of alcohol. Again in contrast, nonalcoholic subjects appear to vary from this pattern in that the only effects of alcohol consumption shown to date are a facilitative effect of consumption on skill related tasks and an increase in tension with alcohol consumption and evaluated performance on a skill task or an applied aversive stimulus. To further explore the TRH, the author will now turn to the second assumption of this hypothesis, namely, that alcohol is consumed to reduce tension.

Insert Tables 1 through 5 about here.

TRH: Do Humans Drink to Reduce Tension

There has been a somewhat limited body of research regarding the issue of stress-induced drinking in humans. This lack of research is most likely due to problems encountered in this type of study in that experimenters must manipulate levels of stress in conjunction with making accurate and unobtrusive measures of subsequent alcohol consumption. In light of these considerations, most research to date has been performed in the laboratory in order to apply adequate controls. The artificiality of this setting thus casts doubt on the gerneralizebility of the results to real life situations.

TRH: Research on Stress-induced Drinking

One study of stress induced drinking performed by Higgins and Marlatt (1973) used a method developed by Schachter et. al. (1968) which used a "taste-rating" measure of alcohol consumption as a function of stress. This measure appeared to meet the criteria of being both accurate yet unobtrusive. In this study nonabstinent alcoholics and social drinkers were engaged in what they believed to be a study of tactile stimulation on the sense

of taste. Subjects in the high-threat condition were attached to an ominous looking shock machine. Subjects were informed that during the taste-rating test they would be administered a severe and painful shock. Subjects in the low-threat condition were attached to a small box containing two flashlight batteries. They were informed that during the taste-rating test they would receive a small almost imperceptible shock. The taste materials included beer, wine, and brandy. During the fifteen minute taste-rating period, the only result found was that alcoholic subjects consumed significantly more alcohol than social drinkers while the shock manipulation had no effect. The authors concluded that the expected effects were not found due to the manipulation being unlike situations encountered in real life. In light of the findings by Williams (1966) that problem drinking was significantly related to self-critical tendencies, a second manipulation of stress was suggested.

In a study exploring a self-evaluation manipulation, Higgins and Marlatt (1975) used male college students who were judged heavy social drinkers on a scale developed by Cahalan, Cisin, and Crossley (1969). Subjects were informed that the study was to explore the effects of "psychological states" on the sense of taste. Subjects were placed in either a high- or low-threat condition. The taste materials

used were three different types of wines. In the high-threat condition subjects were told that during the taste-rating portion of the experiment they were being monitored by female peers for attractiveness. Low-threat subjects were told only that they would be engaging in a second experiment in which they would rate the attractiveness of pictures of females. The "psychological states" experiment was bogused by having subjects respond orally to questions of a personal nature on a periodic basis. This, as explained to the subjects, was to alter their psychological state. As predicted, subjects in the high-threat condition consumed significantly more alcohol than subjects in the low-threat condition. In light of these results, research subsequently focused on the hypothesis that if alcohol is consumed in stressful situations, subjects given alternate means of reducing tension would thus consume less alcohol.

Marlatt, Kostrum, and Lang (1975) performed such an experiment by arousing subjects and then giving them alternate means of reducing tension. Prior to a taste-rating session, male and female heavy social drinkers were either insulted, insulted with the opportunity to retaliate (i.e. shock the insulter), or were not insulted by a confederate in regards to their performance on an anagram-solving task. Subjects were informed that the task

was correlated to their intelligence. Subjects were asked to rate different types of wines in a post-task taste-rating session. Results indicated that insulted subjects who did not have the opportunity to retaliate consumed significantly more wine than no-insult subjects and insult-retaliate subjects. The insult-retaliate and the no-insult subjects did not differ significantly in alcohol consumption. The results obtained were interpreted as support for the hypothesis that subjects given alternate methods of reducing tension will not consume as much alcohol.

In a somewhat similar study, Higgins (1975) studied the effects of control over a threatening situation and alcohol consumption. Male subjects were either told that they would first be in an experiment studying the effects of psychological states on taste-rating after which they would participate in a second experiment, or they were told they would have an option of participating in the second experiment. The first experiment consisted of subjects responding to two personal questions after which they were given immediate feedback on how well their responses were being picked up on recording apparatus. One-half of the subjects were given negative feedback while the other half were given positive feedback. The tasting materials consisted of a wine containing alcohol or a nonalcohol

grape drink. The second experiment was described to the subjects as a peer rating experiment in which females would rate their attractiveness. In line with prior predictions, subjects given negative feedback consumed more of the alcohol drink than subjects given positive feedback. Contrary to prediction, subjects who had a choice of participating in the second experiment did not consume less wine than those subjects who were not given this choice. The authors concluded that the forewarning of the subjects that they would need to assert themselves in the future (in order to avoid the second experiment) probably caused a state of anxiety, thus they consumed as much alcohol as subjects not given this option. This interpretation is supported in a study by Miller, Hersen, Eisler, and Hilsman (1974).

Miller et. al. (1974) performed a subsequent study which researched the effects of social stress on operant drinking patterns using eight alcoholic and a matched group of nonalcoholics. In this study alcohol consumption was monitored by measuring operant output for the acquisition of alcohol. Subjects were required to work at an operant console for ten minutes after the induction of stress to earn points to purchase alcohol. The stress manipulation involved confronting subjects with a set of simulated situations which each required an assertive response. On

the last response, subjects were informed that they had given a poor response and that they were the type of people who were "bossed around." Results indicated that although both groups of subjects emitted an equal amount of autonomic arousal after the stress, alcoholic subjects emitted more operant responses for alcohol in this condition than nonalcoholic subjects. In comparison, in a control condition which did not contain a stress manipulation, subjects, whether alcoholic or not, emitted the same number of operant responses for alcohol. Miller et. al. interpreted these results as indicating that alcoholics use an inadequate coping response in the face of stress rather than a more appropriate response such as learning to be more assertive.

In another attempt to explore the effects of social interaction, stress, and subsequent alcohol consumption, Allman, Taylor, and Nathan (1972) observed three chronic alcoholics over a 32-day study. This study was divided into a four-day predrinking period over which subjects earned points as a group for the later purchase of alcohol, a 20-day drinking period with continued earning of group points for alcohol purchase (this period was subdivided into four-day periods of stress and no stress and concurrent two-day periods of isolation or socialization), and an eight-day postdrinking withdrawal period. Stress was

induced at the beginning of the stress-period by informing the subjects that their operant work had deteriorated such that the group would soon not be able to purchase alcohol due to the lack of points. Results indicated that the stress manipulation suppressed alcohol consumption during periods of social isolation while it increased consumption during periods of socialization. These results can be interpreted as alcohol consumption only being used as a stress reducer when social evaluation is possible.

In general, the research on the effect of alcohol on stress reduction is somewhat supportive of the TRI. The literature suggests that alcohol can be used to reduce tension in situations in which the subject's personal effectiveness is being evaluated or could be evaluated. In contrast to this situation, if a subject is placed in a situation in which stress is just applied irregardless of the subjects actions (i.e. shock), alcohol consumption is not used as a stress reducer. Another interesting effect which the literature suggests is that when subjects are given a means of controlling their situation which does not require a personal response (i.e. shocking a confederate), they will use this method to reduce tension in place of alcohol. In contrast, if the control over the situation requires a personal response (i.e. assertive response) they will use alcohol to reduce tension instead of a situation

control response. Before presenting a reconceptualization of the TRH, all the information covered so far in this review will be summarized.

Insert Table 6 about here.

TRH: Summary of the literature

As previously mentioned, the TRH is based on two assumptions: 1) alcohol reduces tension and 2) individuals consume alcohol to reduce tension. The literature reviewed suggests that support for the TRH assumptions is tenuous at best.

In regards to alcohol's ability to reduce tension, studies provide some support for the hypothesis that alcohol causes a reduction in the reactivity to arousing stimuli over acute administration of the drug, but only when using physiological measures with normal subjects. In opposition to the TRH, alcohol consumption by alcoholic subjects results not in a decrease of physiological tension, but actually in an increase in these measures of tension as consumption progresses from acute to long-term intoxification. Research into the cognitive effects of alcohol is also confusing. In nonalcoholic subjects, there

appears to be a facilitative effect of alcohol consumption when subjects are required to perform cognitive skill related tasks although they show a corresponding increase in anxiety if they evaluate their performance poorly. Research on cognitive effects of alcohol consumption using alcoholic subjects again tends not to support the TRH in that cognitive tension actually appears to increase in this subject population both over the acute and long-term administration of alcohol.

Literature on stress induced alcohol consumption is also somewhat more complicated that the TRH would predict. Stress only appears to be positively related to alcohol consumption when a subject is in a stress situation in which there will be evaluation of personal performance. This effect does not tend to occur if the subject has alternative means of controlling the stress situation.

In light of limited support for the TRH, it appears that a more coherent theory of alcohol consumption is needed to synthesize the causes and effects of alcohol consumption shown in this literature review. The author will attempt to account for these findings by proposing a coping model of alcohol consumption.

Alcoholism: A Coping Model

A coping model of alcohol consumption and alcoholism will be the focus of the remainder of this paper. This model will be based on the hypothesis that some individuals are prone to use alcohol as a means of coping with stress in interpersonal evaluation situations. These situations are proposed to be stressful for individuals who are alcoholics or prone to be alcoholics due to the general low self-esteem found in people of this population (e.g. Yakichuk, 1978). It is proposed that persons in this population use the coping method of alcohol consumption in these situations because of alcohol's ability to impair information processing about the self. This information processing impairment is proposed to reduce the resultant distress from stress experienced in these situations. Therefore, it is suggested that continued alcohol consumption is negatively reinforced by the removal of distress due to low self-image in situations which encompass personal evaluations or in which the individual must rely on personal attributes to act.

Towards developing a new theory of alcohol consumption and alcoholism, the author will first review the theory of stress followed by literature concerning alcoholics' personality characteristics, more specifically their

self-image. The theories of coping will then be addressed after which the effects of alcohol on information processing will be delineated. These factors will then be combined in a coping theory of alcoholism.

Stress

Stress is a concept that has been difficult to define (Cox, 1979). Three main approaches to studying stress have formed the basis for definitions of the term (Cox, 1979; Lazarus, 1966; McGrath, 1970). The first approach to the study of stress treats stress as a response to disturbing enviroments and thus defines the term as a dependent variable. The second approach to stress research has been to describe stress in terms of an independent variable or stimulus in the enviroment. The third and most useful approach to stress (Cox, 1979) has been to view stress as an intervening variable between stimuli and responses. This approach to studying stress assumes that stress arises due to the interaction between person variables and enviromental variables. In light of the intuitive appeal and adequacy of this model in defining stress it will be the definitional approach explored in the following review of stress.

Interactional approaches to defining stress have been deliniated by various authors using different terms (McGrath, 1970; Cox & Mackay, 1979; Lazarus, 1966). In

spite of different terminology, these authors basically agree on the components involved in the interactional model of stress. Stress in this model is viewed as a dynamic system of transaction between the person and the enviroment (Cox, 1979). There are a number of components or stages of this system which have been proposed (McGrath, 1970; Cox & Mackay, 1979; Lazarus, 1966).

The first of these proposed components is a demand factor (Cox, 1979) which is thought to develop from a combination between the needs of the enviroment and the person's ability to meet those needs. Stress is thought to occur when there is an imbalance between these two factors, that is, stress would occur when a perceived enviromental demand appears to exceed a the person's perceived ability to cope with that demand. Lazarus (1981) indicates that demands of the environment can be viewed as irrelevant, benign-positive, or stressful. Stressful demands are in turn viewed as being harmful, threatening, or challenging. How the demands of a situation and the person's ability to cope with these demands are appraised will determine how much stress will be present in the individual, how much distress will be experienced by the individual, and how the person will cope with the situation (Lazarus, 1981).

Another component of stress which is also based on a person's cognitive appraisals is the importance of the situation (Cox, 1979). This component of stress taps the

consequences of not coping or coping inadequately. The importance attached to a situation will determine if stress will be present in that if the consequences of inappropriate coping are seen as harmful or threatening, stress will occur.

The term, feedback, (Cox, 1979) probably best captures another component of stress which governs all of the other components. Feedback is defined by Cox as the physiological and behavioral responses which affect the perception or actual nature of the stressful situation. This component of stress can best be described by explaining what happens when a behavioral coping response is either not initiated or inappropriate. In this type of situation, the psychophysiological responses of stress result in distress which would be prolonged or even increased due to the person's inability to generate an effective behavioral response. Behavioral responding, as opposed to physiological responding, normally takes the form of an active coping response aimed at reducing stress.

In summary, stress is viewed as a perceptual phenomena which arises from the interaction between enviromental demands and a person's ability to cope. An imbalance between these two factors leads to the experience of stress and a stress response which is physiological and/or behavioral. Behavioral responses to stress represent attempts at coping with the stress while inapropriate

coping leads to increased or prolonged psychophysiological stress (distress). In order to explore stress as a function of alcohol consumption, the research regarding the personality characteristics of the alcoholic which may lead to stress and/or inadequate coping will now be reviewed.

Personality Characteristics of the Alcoholic

The search for an "alcoholic personality" through the years of alcohol research has been basically fruitless (e.g. see reviews by Sutherland, Schroeder, & Tordella, 1950; Syme, 1957). This inability to find a global set of traits which would predict alcoholism, does not necessarily mean that alcoholics don't share certain personality characteristics.

Blane (1968) has proposed, based on clinical observations, that alcoholics in general are prone to undervaluation of the self. Research, although not prolific, has tended to support Blane's theory (Gross & Alder, 1970; Blume, 1967; Yakichuk, 1978).

In a retrospective self-evaluation study of 53 male alcoholics in a voluntary treatment center, Blume (1968) had individuals rate themselves on 13 separate personality traits (for two time periods in their life) when sober and after having a few drinks. Subjects indicated that in an early time period in their lives (average age 23) when they were functioning adequately, they reported poor

self-confidence, difficulty in expressing anger, greater than average tension, and oversensitivity. The alcoholics reported that a few drinks in this early time period tended to correct these deficits. Comparing these reports to evaluations made of themselves shortly before entering a treatment hospital, subjects reported they had the same personality deficits as in earlier years when sober, although drinking in this later time period resulted in adverse effects such as increased depression, reduced general activity, lowered ambition, and decreased sexual activity. In summary, alcoholics view themselves as having personality deficits and although early in their lives alcohol may help compensate for personality deficits, prolonged drinking leads to increased personality problems.

In an inventory measurement of alcoholic's views of self, Gross and Alder (1970) administered the Tennessee Self-Concept Scale to 140 male alcoholics in a treatment center. Across the 10 aspects of self-concept measured by this scale, alcoholics rated themselves negatively in regards to a standardized normal sample on measures of identity, self-dissatisfaction, behavior, physical self, moral-ethical self, personal self, family self, social self, and self-criticism.

In a recent study using the Tennessee Self-Concept Scale, Yakichuk (1978) also found difference in self-perceptions between forty-six alcoholics and

fifty-nine nonalcoholics. In this study alcoholics negatively differed from nonalcoholics on measures of self-perceived; health, physical appearance, sexuality, moral worth, personal worth, adequacy as a person, and worth and adequacy as a family member. Along with negative views of self on these factors, alcoholics also viewed themselves lower in regards to their secondary social group than nonalcoholics.

In a study using the MMPI to identify prealcoholic personality factors, Hoffman et. al. (1974) found that individuals who later became problem drinkers had lower self-confidence, had increased feelings of failure, and tended to withdraw in social situations as compared to their peers.

Along with these studies directly exploring self-concept in alcoholics, other research projects have implicated that alcoholics have a lower self-image via analysis of MMPI items and scales (e.g. Hewitt, 1943; Lisansky, 1972) and interpretation of projective tests (e.g. See Neuringer and Clopton, 1976 for review). Support for these findings also comes from studies using college students in which heavy alcohol use was found to be associated with self criticality (Williams, 1965) and low self-esteem (Schaeffer, Schuckit, & Morrissey, 1976). Also, in a study of social factors affecting alcohol consumption, Pearlin and Radabaugh (1976) found that economic hardships

were related to drinking although this was especially true for low self-esteem individuals. Further support for the low self-esteem of alcoholics is provided by Blane (1968) who found that most researchers in the area of alcoholism agree that loss of positive self-concept is a major trait found in alcoholic subjects.

In summary, the literature suggests that alcoholics are deficient in the area of self-image and are more critical in their evaluations of themselves than nonalcoholics. Because of their low self-image, it could be assumed that alcoholics would experience stress in situations of a personal evaluative nature or when they are asked to perform a behavior which normally requires an adequate self-image such as assertiveness. Ludwig and Lazarus (1972) suggested that adaptive assertive coping responses are inhibited by cognitive sets such as low self-image and self-criticism. Due to these cognitive sets, situations demanding an assertive response are probably appraised by alcohol prone individuals as threatening and stressful since they would most likely be interpreted as exceeding the individual's ability to cope.

The present reconceptualization of alcoholism views the consumption of alcohol as a coping method to compensate for deficits in self-image. Coping theory will be reviewed next.

Coping

Lazarus' model (1981) of coping appears to be the most cited and functional model for explaining coping methods to date and thus it will be the model reviewed in this paper. Lazarus views coping as the process of dealing with demanding situations which are perceived as stressful. Through coping, the person attempts to master stressful situations although this does not automatically assume an adequate coping strategy. Lazarus (1981, 1966) divides coping methods into three processes; direct action, inhibition of action, and palliation.

Direct action coping (Lazarus, 1981) refers to actual behavior directed at changing either the self or the enviroment in an attempt to reduce stress. Methods of direct action are thought to include such diverse behaviors as suicide, flight from threat, expressing anger, aggression, seeking revenge, etc.

Lazarus (1981) describes inhibition of action as the opposite of direct action. Although this response to stress does not appear to be a coping method, Lazarus proposes that the holding back of action impulses is often required so that other considerations such as moral and ethical values are not in conflict. An example of this type of coping would be the inhibition of impulses towards aggressive behaviors so that ethical or religious morals are not violated.

Palliation is described by Lazarus as another method of coping with stress. Palliation, although not directly reducing the causes of stress, is concerned with the moderating of the distress caused by stress through reducing its psychophysiological effects. Lazarus (1976) divides palliation into two separate modes, symptom directed and intrapsychic.

Intrapsychic modes of coping encompass such factors as denial, insulation, self-deception, reaction formation, projection and avoidance (Lazarus, 1981). These methods are palliative in nature in that although they don't remove stress, they make the person feel better by reducing the emotional distress associated with the stress. Intrapsychic modes can be directed at the self and/or the enviroment and the past, future and/or the present.

Symptom directed methods of coping involve the use of "body-centered techniques" for reducing the symptoms of stress (Lazarus, 1981). These techniques can include relaxation training or the use of sedatives or other physiological altering substances such as alcohol. Since these are palliative modes of coping, they do not remove the causes of the stress, instead they only treat the symptoms. Thus once the drugs effects cease or the effects of the drug no longer cause the reduction of distress, stress and the resulting distress will continue or even increase.

In summary, coping can consist of various methods, some directed at changing the stressor itself and some aimed at relieving the distress caused by the stressor. Alcoholics appear to use a symptom directed palliative method of coping which, although reducing distress, does nothing to solve the cause of the distress. Following will be a review of alcohol's effects on information processing which will suggest how alcohol is a palliative coping method.

Alcohol's effect on Information Processing

Research into the effects of alcohol, as has been shown, does not support the tension reduction hypothesis assumption that alcohol consumption reduces tension. The question then becomes how does alcohol reduce the distress caused by stress and how is the consumption of alcohol reinforced so that it is a habitual response to distress.

Recent literature on information processing suggests that alcohol impairs the storage/consolidation processes of memory (Birnbaum & Parker, 1977; Jones & Jones, 1977; Weingartner et. al., 1977; Hull, 1981). Alcohol's impairing effects on these higher order cognitive functions is supported via research performed by Weingartner, Adefris, Eich, and Murphy (1976). In their study of alcohol and human memory, they concluded that alcohol's effect on memory is not actually concerned with retrieval of stored

information as previously thought. Instead, they indicate that alcohol appears to affect the coding and tagging of information such as that which is involved in labeling information as relevant or not to self-image. Research into the impairment effects of alcohol on the encoding of information has found widespread support (Huntley, 1974; Craik & Lockhart, 1972; Gerrein & Chechile, 1977).

In conjunction with this effect, other research on information processing suggests that concepts such as self-image are encoded and processed via a "self-schema" (Kuiper, 1981; Kuiper & Rodgers, 1979; Rogers, Kuiper, & Kirker, 1977; Rogers, Rodgers, & Kuiper, 1979; Hull, 1981). This self-schematic processing is proposed to provide a basis for evaluating incoming information about the self (See Taylor & Crocker, 1980 for review). Thus, either "other" or "self" evaluations of self performance would be impaired by alcohol consumption (Hebb, 1955; Hull, 1982).

Due to the self-schematic encoding impairment effect of alcohol, it is proposed that alcohol may serve as a palliative coping behavior. This coping method would thus relieve distress felt by low self-image individuals in situations where personal performance is needed and it can be negatively evaluated by others or the individual themselves. The literature reviewed on stress, coping, personality characteristics of alcoholics, and alcohol's ability to impair self-relevant information processing will

next be synthesized. A coherent theory of alcohol consumption based on a coping model will be presented. This model appears to more adequately account for the research on alcoholism to date.

Coping model of Alcohol Consumption

In the review of the literature of the TRH it was shown that alcoholics tend to use alcohol in situations in which personal evaluation is present or as an alternative method of coping when a response requiring personal performance, such as an assertive response, is needed. The review of personality characteristics of alcoholics indicated that this subject population, in general, has a low self-image and is more prone to critical evaluations of self than nonalcoholics. In light of these personality characteristics, it would be assumed that these individuals would find situations of an evaluative nature or those requiring an assertive response as stressful in that they would feel that they could not cope adequately in these situations (Ludwig & Lazarus, 1972). As outlined in the review of stress, the cognitive emotion of distress accompanies stressful situations. Due to the stress and resulting distress induced by these situations in alcoholics, some type of coping response would be required.

It is proposed that alcoholics use alcohol consumption as a palliative coping method in order to reduce distress

caused by stressful situations of the type described above. This coping model of alcohol consumption is based on alcohol's ability to impair the encoding of self-relevant performance information, thus, temporarily disassociating actions from self-image. Cox (1979) indicates that schematic views of the self (e.g. self-image) are not only formed by past experience but augmented by current behaviors and the perception of these behaviors. The perception of self-image is thus determined by evaluation of performance. Evaluation of performance can either be from observer performance feedback (Hull & Levey, 1979) or self perception of performance.

In light of these factors, it is proposed that alcohol consumption will occur if their is outside negative evaluation of performance (e.g. Miller et. al, 1974) or self-generated critical evaluations (Gross & Alder, 1970; Yakichuk, 1978) of self-performance. Alcohol consumption is proposed to be reinforced via its ability to relieve distress caused by negative evaluations of performance. Distress is thus reduced by disassociating present performance from self-image via information processing impairment. The alcohol consumer would thus not attribute negative evaluations to self-worth. The effect of alcohol consumption is therefore the maintenance of self-image in the face of negative evaluations from others or the self.

This coping model of alcohol consumption thus assumes

for this population; (a) in situations were observers negatively evaluate self performance alcohol would be consumed, (b) when faced with personal or social situations which require a personal response which can be negatively evaluated due to self critical tendencies, alcohol will be consumed, and (c) long-term alcohol consumption will lead to increased stress and depression due to the palliative nature of this coping method. These assumptions of the model will be addressed next.

Observer Negative Evaluations: The effect of negative observer evaluation on alcohol consumption was shown by a number of the studies reviewed (Allman, Taylor, & Nathan, 1972; Miller, Hersen, Eisler, & Hilsman, 1974; Miller et. al., 1974; Marlatt et. al., 1975) These studies, as predicted by a coping model of alcohol consumption, indicated that when subjects are given negative personal performance feedback, alcohol consumption increases.

In contrast to negative personal performance feedback, it was shown that if subjects are simply given an aversive stimulus irregardless of their performance, (Marlatt, 1973) subjects will not consume more alcohol. This effect is explained in that self-image in a nonpersonal negative feedback situation can not be protected since the aversive stimulus is not contingent on self-performance. In one study of negative personal evaluation and subsequent alcohol consumption, (Marlatt et. al., 1975) it was shown

that if subjects could impersonally cope with the negative personal evaluation (i.e. shocking an insulter), alcohol consumption would not be the preferred coping method. This effect suggests that although alcohol consumption is the normal effect of negative personal performance evaluation, if an individual can impersonally cope with a situation with no threat to self-image, alternate coping methods are preferred.

In summary, the literature on stress induced drinking appears to support the coping model of alcohol consumption in that low self-image alcoholics use alcohol consumption as a coping method in situations where their performance is personally negatively evaluated. These type of situations do not appear though to explain why alcohol consumption is a habitual behavior. To adequately explain daily alcohol consumption, the present model must account for the constant reinforcement of drinking behavior both via outside negative evaluations of performance and a more continual personal negative evaluations of self.

Personal Negative Evaluation: Along with the suggestion that observer negative evaluation leads to increased alcohol consumption, the literature also suggests that if there is the possibility of negative personal feedback, alcohol consumption will still increase (Higgins & Marlatt, 1975). This effect is explained by the coping model of alcohol consumption in that alcoholics in general

are more critical of their performance or expected performance than nonalcoholics (Gross & Alder, 1970; Yakichuk, 1978). In contrast to coping with a situation through impersonal control methods as shown in the Korman et. al. study (1960), when a personal response (i.e. assertiveness) is needed to control an individual's fate or cope with a situation, (Higgins, 1975) alcohol consumption will still be the chosen method of coping. Due to social skills reliance on an adequate self-image (Ludwig & Lazarus, 1972), it is proposed that alcoholics are continually negatively evaluating their performance in social situations. Since alcoholics tend to cope with negative performance evaluation by consuming alcohol to disassociate performance from self-image, it is proposed that everyday functioning and interacting with others leads to alcohol consumption which is reinforcing due its ability to reduce distress in social situations. Support for increased alcohol consumption in social situations is depicted in the study by Allman et. al. (1972) in that even though alcoholics in this experiment were under stressful observer negative personal evaluation, if the subjects were allowed to remain in isolation, they did not consume more alcohol.

Other Support for the Coping Model: The coping effect of alcohol consumption was also shown in the literature

reviewed concerning the cognitive tension reducing effects of alcohol consumption using nonalcoholics. This research (Polivy et. al., 1976; Kormam et. al. 1960) indicated that even nonalcoholics appear to experience the self-image protecting effect of alcohol consumption. In contrast to normal social functioning, when this population is presented with a skill task or an unusual social experience (See previous review) alcohol can have a facilitive effect on performance. This enhancement of performance, in contrast to the TRH, was not in all cases shown to be an effect of tension reduction. Thus it is hypothesized that alcohol improves performance due to its ability to separate current performance evaluation from self-image. The facilitation of performance would be an effect of deceased distress which has been implicated in improved overall functioning (See Lazarus, 1981 for review). Research with this population also indicated that alcohol tended to reduce GSR which is thought to measure emotional reactivity to stimuli. Emotions have been shown to be affected by an individual's self-confidence (e.g Buck, 1974) thus the information processing impairment effects of alcohol would also effect emotional responsivness.

The palliative coping model of alcohol consumption can also account for the literature reviewed which showed that contrary to the TRH's assumptions, alcohol consumption actually increases cognitive and physiological tension over

long-term administrations. Due to the palliative nature of this coping response, (i.e only relieving the distress caused by the critical evaluation of self-performance) stress would actually be prolonged or increased due to the lack of a resolution of the stress inducing situation, namely low self-image causing negative evaluations of the self.

Another factor which this model of alcohol consumption accounts for is the increase in depressive mood of alcoholics over long-term use of alcohol (e.g. See Freed 1978 for review). Cox (1979) indicates that depression is a normal outcome of long exposures to stress. Blume (1968) has shown that prolonged alcohol use led to depression, after consumption of alcohol, as opposed to reduced distress. Depression would result in these situations from feelings of learned helplessness associated with the inability to solve the stress causing situation (See Abramson et. al., 1978 for review). Since alcohol consumption is a palliative coping response, attempts are not made by the consumer at solving the underlying reasons for the stress which in this case is proposed to be low self-image, thus learned helplessness would be a normal outcome of the person's inability to resolve the stressful situation.

Another area of research which a coping model helps to understand is the research on the effects of expectations

on alcohol consumption (Marlatt & Rohsenow, 1980). In a recent study, Southwick et. al. (1981) found that heavy and light drinkers differ in their expectations of alcohol. While both groups of drinkers expected the same negative effects of drinking, heavy drinkers expected greater positive effects from drinking. This finding is in support of a coping model of alcohol consumption in that only heavy drinkers benefit from the cognitive impairing effects of alcohol consumption thus they view the experience as positive (i.e. reinforcing).

The present model of alcohol consumption also aids in the understanding of research into other models of alcoholism. Recently a model of alcohol consumption has been proposed (Jones & Berglas, 1978; Berglas & Jones, 1978) which assumes that alcohol is consumed so that individuals can attribute failures on the effects of the drug and attribute successes to personal abilities which are enhanced in light of success due to the person's belief that his abilities have overcome adverse conditions. The results of research on this model can be explained via a coping model in that personal evaluations of performance would be avoided by consuming alcohol in these situations due to its negative effects on information processing of self-image type information. Thus a person's self-image would be protected in these evaluation type situation were there is a chance of failure. The hypothesis of the

self-handicapping theory, that self-esteem would be enhanced in situations of success while influenced by alcohol, have yet to be shown in the research.

In conjunction with aiding in the understanding of the literature, alcohol's effect on information processing of self-image information has an intuitive appeal. The loss of inhibition after alcohol consumption is a popular effect. This loss of inhibition can be explained via the hampering of information processing of self-image type information in that when a person drinks, s/he does not think about the consequences of his/her actions on their image, either self or social. The morning after "regrets", once the information processing effects of the drug have worn off has been experienced by most individuals who have ever consumed a "little too much."

The coping model of alcohol consumption is also implicated via one of the most successful treatment programs for alcoholism. The Alcoholics Anonymous serenity prayer is "God grant me the serenity to accept the things I can not change, courage to change the things I can, and the wisdom to know the difference." This appears to be a direct approach to coping with stress as an alternative to the palliative method of alcohol consumption proposed. Thus individuals are encouraged in this treatment towards more adequate methods of coping with low self-image.

In summary, a palliative coping model of alcohol

consumption appears to account for a larger percent of research performed on alcohol consumption than the TRH. This model proposes that alcohol is consumed due to its ability to protect or maintain self-image via the impairment of encoding of self-relevant information. This effect leads to continued consumption via its reinforcing effects through relieving distress. In contrast to its short-term effects, long-term consumption of alcohol results in increased stress and depression through the lack of resolution of the stressor and resultant learned helplessness. Future directions for research will be deliniated next.

Future Directions

Future studies on alcohol consumption and alcoholism should concentrate on supporting or refuting the assumptions based on the coping model of alcoholism. These assumptions are; (a) people prone to alcohol consumption have a low self-image and are prone to be self critical of their performance, (b) alcohol consumption will take place with this type of individual when there are observer negative evaluations of personal performance, (c) individuals in this population will consume alcohol in social situations when their performance can be critically evaluated by themselves, and (d) long-term alcohol consumption leads to increased stress and depression. To

adequately study the functions of alcohol consumption it is proposed that subjects involved in this type of research should be tested for self-image and self critical tendencies.

The true test of this model of alcohol consumption will be in its ability to suggest proper treatment strategies. This model assumes that treatment could take two divergent forms. First it is proposed that if alcoholic's self-image is raised and their tendencies towards self-critical evaluations are removed, these individuals would not be in need of a coping method since stress would be removed. The second approach to treatment would be to teach more adequate coping methods to these individuals. This appears to the method which Alcoholics Anonymous is using although the procedure has developed mainly out of trial and error in opposition to a treatment based on a sound model of why alcohol is consumed. Presuming that the present model withstands the rigors of research, the teaching of alternate direct coping methods would be another method of treating this socially important disease.

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Table 1

TRH Research: Nonalcoholic Subjects

Physiological Measures of Tension: Acute Administration

Study	Results
Carpenter (1957)	Increased dose of alcohol led to decreased GSR.
Lienert & Traxel (1959)	Lower GSR reactivity to emtionally laden sentences after alcohol consumption
Coopersmith (1964)	Increased GSR reactivity to emtionally laden sentences although smaller differences high to low affect words. after Alcohol
McDonnel & Carpenter (1959)	No effect of alcohol consumption on BSC
McGonnel & Beach (1968)	Alcohol reduced the amplitude of conditioned GSR
Goddard (1958)	Consumption reduced noradrenaline in stress situation
Doctor & Perkins (1961)	No effect of alcohol on HR under stress

Table 2

TRH Research: Nonalcoholic Subjects

Cognitive Measures of Tension: Acute Administration

Study	Results
Korman, Knopf & Austin (1960)	Improved performance on serial learning task after alcohol
Logue, Gentry, Linnoila, & Erwin (1978)	Increased self-re orted anxiety during psychomotor skill task
Williams (1966)	Low doses of alcohol reduced anxiety while high doses increased anxiety as measured by checklist
Smith, Parker & Noble (1975)	Alcohol consumption led to increased mood in social situations; no effect on anxiety
McClelland & Kahn (1965)	Large doses of alcohol had "fear anxiety" reducing effect as measured by dhe TAT
Polivy, Schueneman & Carlson (1976)	Consumption led to decreased self-reported anxiety

Table 3

TRH Research: Nonalcoholic Subjects

Mixed Measures of Tension

Study	Results
Dengerink & Fagan (1978)	Alcohol consumption under stress led to; increased emtional arousal, high levels of self-report anxiety, no effect on behavioral measure of anxiety
Wilson & Abrams (1977)	Males expecting alcohol showed increased arousal; Physiological and observed, no effect self-report
Abrams & Wilson (1979)	Females expecting alcohol showed decbeased arousal; Physiological and observed; self-report indicated no expectancy effect although social interaction led to increased anxiety
Wilson, Abrams, & Lipscomb (1980)	Dose related effects on physiological and observed measures of anxiety in social situation; no self-report or past drinking pattern effects

Table 4

TRH Research: Alcoholic Subjects

Physiological Measures of Tension:
Acute and Long-term Administration

Acute Administration:

Study	Results
Kisson & Hankoff (1959)	Reduced extremes of CSR after consumption
Doctor, Naitoh & Smith (1966)	Positive correlation: resting HR and alcohol consumption
Levenson, Sher & Grossman (1980)	Post stressor alcohol consumption led to reduced magnitude HR & PTT & anxiety measured by self-report

Long Term Administration:

Doctor & Bernal (1964)	Alcohol consumption led to increased HR

Table 5

TRH Research: Alcoholic Subjects

Cognitive Measures of Tension:
Acute and Long-term Administration

Acute Adminstration:

Study	Results
Van Der Spy (1972)	Decreased tension and anxiety as measured by projective tests after alcohol consumption

Long-term Administration:

Mendelson (1964)	Observed decrease in anxiet; after 24 days of drinking
McName, Mello & Mendelson (1968)	Anxiety & Depression increased over week of consumption
Mendelson, La Dou & Soloman (1964)	Anxiety & Depression increased over two weeks of consumption
McGuire, Stein & Mendelson (1966)	Mixed results of increased anxiety over four days of consumption
Nathan & O'Brien (1971)	Anxiety & Depression increased over 18 days of of consumption
Steffen, Nathan & Taylor (1974)	Over 12 days of drinking: Negative correlation blood alcohol level and EMG, Positife correlation blood alcohol level and measures of distress

Table 6

TRH Reasearch: Stress Induced Drinking

Study	Results
Higgins & Marlatt (1973)	No increased consumption to threat of shock. Alcoholics & Social drinkers
Higgins & Marlatt (1975)	Increased consumption to threat of being judged for attractiveness
Marlatt, Kostrum & Lang (1975)	Increased consumption after insults, effect not found if subjects could impersonnaly retaliade. Heavy drinkers
Higgins (1975)	Increased consumption to threat of being judged for attractiveness; effect still found even though subjects could avoid threat through assertiveness
Miller, Hersen, Eisler & Hilsman (1974)	Increased consumption by alcoholics as opposed to nonalcoholics when subjects required to assertively respond to stressful situation
Allman, Taylor & Nathan (1972)	Negative evaluation of work led to increased consumption by alcoholics, but only in socialization